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## Geography Working Paper Series

# Delineation of 2006 Urban Areas: Challenges and Achievements

by Kelly Matier

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## Abstract

An urban area has a minimum population concentration of 1,000 persons and a population density of at least 400 persons per square kilometre, based on the current census population count. All territory outside urban areas is classified as rural. Taken together, urban and rural areas cover all of Canada. For the 2001 Census, there were 913 urban areas. In 2006, the number of urban areas decreased to 895.

Following the release of urban areas for the 2001 Census, in-depth analysis revealed that the land area of many urban areas had increased substantially and the boundaries of these urban areas were considered to be over-bounded. In response, the boundaries of nearly half of the 2001 urban areas were updated to rectify this over-bounding, either manually or automatically. This paper describes the post-censal update process of 2001 urban areas and addresses the impact on the 2001 modified population counts adjusted to 2006 urban area boundaries.

The paper also briefly describes and compares the delineation criteria for urban areas from the 1996 and 2001 Censuses.

## 1.0 Introduction

An urban area has a population of at least 1,000 and no fewer than 400 persons per square kilometre. Part of the delineation process includes tests for spatial contiguity to ensure data confidentiality. As such, urban areas are reviewed and may be modified where appropriate, for example, the removal of interior holes. As a result, the land area of some urban areas may increase so that the population density of the entire urban area is less than 400 persons per square kilometre. The impact on the total population is minor since the added areas are usually sparsely populated, or contain no population at all.

The delineation of urban areas for the 2006 Census is largely impacted by:

- The change in the methodology used for delineating urban areas in 2001
- The delineation and post-censal update of 2001 urban areas.

In this paper, the impact of each of the above factors is reviewed with respect to the resulting changes to urban areas for 2006 and the calculation of associated 2001 modified population counts.

## 2.0 Changes to delineation methodology

In 2001, a number of geographic changes were implemented that affected the delineation of 2001 urban areas. Above all, for the first time, the delineation of urban areas was done with an automated process, the Generalized Area Delineation System (GArDS), that made it possible to use population counts and population density data from the current census. Prior to 2001, the process was manual and, to avoid a release delay of census information, population count and density data were based on the previous census.

Also in 2001, the block (an area equivalent to a city block bounded by intersecting streets) became the basic building block for forming urban areas. Prior to 2001, the geographic unit used for urban area delineation was the enumeration area.

Since 2001 urban area delineation must start with an assessment of urban areas from the previous census, all 2001 blocks that made up the 1996 urban areas had to be assigned a valid urban area code in order to be assessed in the 2001 urban area delineation process (see Appendix A for detailed delineation rules). This process was handled by GArDS and the resulting blocks were used as input for the 2001 delineation process. Since 2001 blocks did not necessarily respect 1996 enumeration areas, it was not possible to recreate 1996 urban areas based on 2001 blocks with 100% accuracy. In some cases, the block boundary extended beyond the enumeration area boundary. A decision was made to include the entire block as part of the urban area for data comparability since block splitting was not a viable option at the time.

Another important change for 2001 was the conversion of the geographic referencing system from North American Datum of 1927 (NAD27) to North American Datum of 1983 (NAD83). Spatial data based on NAD27 will not be coincident with the same spatial data based on NAD83. The conversion to NAD83 had an effect on the transfer of positional information from the 1996 urban area to the 2001 block. It is possible, therefore, that the block input used by GArDS to delineate 2001 urban areas did not exactly depict the 1996 urban area structure that was published.

### 3.0 2001 delineation and post-censal update

Notwithstanding the challenges described above in creating a good block-based input to the urban area delineation process, GArDS was used for the first time in 2001 to create urban areas. Initial results were deemed successful and the 2001 urban area boundaries were published. In subsequent months, a review of the boundaries revealed that a number of excessively large blocks had been added to some urban areas, mostly during the reconciliation process from the enumeration area to the block. Together, the reconciliation process and the 2001 delineation process increased the land area of 200 urban areas by more than 25% (see Table 3.1). Further analysis led to the conclusion that many of these urban areas were over-bounded.

**Table 3.1 Land area growth of urban areas, 1996 to 2001**

<b>Land area growth (percent range)</b>	<b>Urban areas</b>	
	<b>Count</b>	<b>Percent</b>
Less than 0 <sup>1</sup>	1	0.1
0	344	41.3
1 to 9	218	26.2
10 to 24	67	8.0
25 to 49	53	6.4
50 to 99	42	5.0
100 to 249	44	5.3
Greater than or equal to 250	64	7.7
<b>Total</b>	<b>833</b>	<b>100.0</b>

1. Negative land area adjustment between 1996 and 2001 can be attributed to the conversion from North American Datum of 1927 (NAD27) and the North American Datum of 1983 (NAD83).

In 2004, it was decided that many urban areas would be manually updated to rectify the substantial over-bounding of land area. To do so required the manual splitting of larger blocks into smaller blocks, allocating the population as the technician deemed appropriate and assigning valid urban area codes to those smaller blocks that would remain part of the urban area. Those blocks that were to be excluded from the urban area were assigned a rural code for the province in which it was located. This method of population allocation differs from the traditional method used when adjusting geographic boundaries, which allocates population and dwellings based on information obtained from census visitation records to the appropriate block.

At the same time that urban areas were being manually updated, the block, which is now called the dissemination block for 2006, was being delineated by GArDS for the 2006 Census. Since the 2006 dissemination block structure is largely dependent on the road network (as was the 2001 block structure), GArDS would create smaller blocks where road network had been added and would merge blocks where road network had been removed. GArDS was careful to maintain blocks that were defined by higher-level geographic boundaries. However, urban areas were not processed as a higher-level boundary and there were instances where blocks were added or removed from 2001 urban areas because they were merged with other blocks that were adjacent to, but outside of, the urban area boundary.

The manual update to over-bounding blocks and the automatic adjustment of blocks by GArDS that were associated with the 2001 urban area define the net effect of post-censal update to 2001 urban areas. In total, 412 (or 45%) of the 913 urban areas from the 2001 Census were updated post-censally to repair the over-bounding. A complete list of updated UAs and the corresponding area modifications are presented in Appendix B. This update also included the reinstatement of four urban areas that GArDS had merged with nearby urban areas in 2001: Fortune (UA 10 0300), Sainte-Croix (UA 24 0878), Châteauguay (UA 24 1177), and Dowling (UA 35 1084). Table 3.2 shows the counts of urban areas that experienced a land area reduction.

**Table 3.2 Urban areas that experienced a post-censal land area update, 2001**

<b>Amount of reduction (percent range: final to modified)</b>	<b>Urban areas (count)</b>
>= 80	42
60 to 79	34
40 to 59	31
20 to 39	11
<= 19	294
<b>Total</b>	<b>412</b>

A review of the resulting urban area boundaries yielded satisfactory results and the areas were deemed final and ready to use for 2006 urban area delineation. Table 3.3 summarizes the land area change in urban areas by province between 2001 and 2006, showing the difference between the 2001 published land area and the 2001 post-censally modified land area.

**Table 3.3 Land area of urban areas, 2001 (final and modified) and 2006**

	2001				2006
	Published urban land area in squared kilometres	Modified urban land area in squared kilometres	Difference in squared kilometres (published minus adjusted)	Percent difference (%)	Urban land area in squared kilometres
Newfoundland and Labrador	729.75	534.22	-195.53	-26.8	533.98
Prince Edward Island	101.18	101.18	0	0.0	101.57
Nova Scotia	713.33	713.48	0.15	0.0	711.25
New Brunswick	944.79	929.11	-15.68	-1.7	935.41
Québec	7,632.59	5,178.71	-2,453.87	-32.2	5,268.22
Ontario	7,515.11	7,022.30	-492.81	-6.6	7,211.62
Manitoba	886.51	820.29	-66.21	-7.5	821.86
Saskatchewan	850.3	825.16	-25.14	-3.0	833.98
Alberta	3,308.26	2,893.43	-414.83	-12.5	2,969.20
British Columbia	4,300.99	3,283.72	-1,017.27	-23.7	3,408.82
Yukon Territory	44.83	44.89	0.07	0.1	44.98
Northwest Territories	21.43	21.45	0.02	0.1	21.45
Nunavut	80.12	80.12	0	0.0	81.15
<b>Canada</b>	<b>27,129.19</b>	<b>22,448.07</b>	<b>-4,681.12</b>	<b>-17.3</b>	<b>22,943.50</b>

Statistics Canada's land area measurements are unofficial, and are used only for calculating population density. The population density is calculated, using land area at four decimal places. The land area presented in these tables is calculated and stored in square kilometres at the block level, and then aggregated to the higher level geographic units. It is rounded to two decimal places. Land area data for the standard geographic areas reflect the boundaries in effect on the geographic reference date for the Census of Canada, which is January 1 of census year.

It is important to note that the land area between censuses differs, particularly between 1996 and 2001, because the methodology for calculating land area changed. Land area for 1996 was calculated manually whereas it was calculated using an automated approach for 2001. Table 3.4 shows the total and urban land areas for the provinces and territories in 1996, 2001 (modified) and 2006 censuses. Although there is a noticeable difference between the land area values in each census year, the percentage of land area that is urban remains relatively constant.

**Table 3.4 Total and urban land area, 1996, 2001 (modified) and 2006**

	1996			2001			2006		
	Total land area in square kilometres	Urban land area in square kilometres	% urban land area	Total land area in square kilometres	Modified urban land area in square kilometres	% urban land area	Total land area in square kilometres	Urban land area in square kilometres	% urban land area
Newfoundland and Labrador	371,034.56	517.79	0.14	370,501.69	534.22	0.14	370,494.89	533.98	0.14
Prince Edward Island	5,660.38	88.52	1.56	5,684.39	101.18	1.78	5,683.91	101.57	1.79
Nova Scotia	52,840.83	701.19	1.33	52,917.43	713.48	1.35	52,917.46	711.25	1.34
New Brunswick	71,569.23	747.60	1.04	71,355.67	929.11	1.30	71,355.12	935.41	1.31
Quebec	1,357,811.73	4,702.75	0.35	1,357,743.08	5,178.71	0.38	1,356,366.78	5,268.22	0.39
Ontario	916,733.70	7,027.96	0.77	907,655.59	7,022.30	0.77	907,573.82	7,211.62	0.79
Manitoba	547,703.85	594.13	0.11	551,937.87	820.29	0.15	552,369.96	821.86	0.15
Saskatchewan	570,113.47	779.96	0.14	586,561.35	825.16	0.14	588,276.09	833.98	0.14
Alberta	638,232.66	2,568.88	0.40	639,987.12	2,893.43	0.45	640,044.57	2,969.20	0.46
British Columbia	892,677.00	2,891.73	0.32	926,492.48	3,283.72	0.35	924,815.43	3,408.82	0.37
Yukon Territory	531,843.62	50.16	0.01	474,706.97	44.89	0.01	474,711.02	44.98	0.01
Northwest Territories	3,246,389.46	38.52	0.00	1,141,108.37	21.45	0.00	1,140,834.90	21.45	0.00
Nunavut	...	...	...	1,925,460.18	80.12	0.00	1,932,254.97	81.15	0.00
<b>Canada</b>	<b>9,203,210.49</b>	<b>20,709.19</b>	<b>0.23</b>	<b>9,012,112.20</b>	<b>22,448.07</b>	<b>0.25</b>	<b>9,017,698.92</b>	<b>22,943.50</b>	<b>0.25</b>

... not applicable

**Note:** The territory of Nunavut came into effect on April 1, 1999; thus population counts for Nunavut were not published in 1996.

For more information on the calculation of land area at Statistics Canada, please refer to the Geography working paper, *Automated Land Area Tests for the 2001 Census: Preliminary Results Using the 1996 Digital Cartographic Files*, by Carolyn Weiss and Augustine Akuoko-Asibey (catalogue no. 92F0138MIE1998001).

The net effect on the population of the urban population counts was minimal. As shown in Table 3.5, the 2001 urban population of Canada was initially published at just over 23.9 million. Upon completion of the post-censal updates to all urban areas and the modification of the associated population counts, the urban population of Canada dropped by less than one-half of one percent (-0.2%). Four of the 10 provinces and all three territories experienced no change in their urban population counts. The largest decrease was experienced by Quebec, where the urban population decreased by -0.4%, or about 23,000 persons, after post-censal urban area updates. This decrease in the modified population count is consistent with the land area reductions following urban area updates in each province.

**Table 3.5 Urban population, 2001 (published and modified)**

	<b>Published</b>	<b>Modified</b>	<b>Difference</b>	<b>Percent change (%) (published to modified)</b>
Newfoundland and Labrador	296,196	293,154	-3,042	-1.0
Prince Edward Island	60,675	60,675	0	0.0
Nova Scotia	507,009	507,009	0	0.0
New Brunswick	367,902	367,649	-253	-0.1
Quebec	5,817,149	5,794,054	-23,095	-0.4
Ontario	9,662,547	9,656,639	-5,908	-0.1
Manitoba	805,321	805,222	-99	0.0
Saskatchewan	629,036	629,016	-20	0.0
Alberta	2,405,160	2,403,015	-2,145	-0.1
British Columbia	3,309,853	3,302,352	-7,501	-0.2
Yukon Territory	16,843	16,843	0	0.0
Northwest Territories	21,831	21,831	0	0.0
Nunavut	8,689	8,689	0	0.0
<b>Canada</b>	<b>23,908,211</b>	<b>23,866,148</b>	<b>-42,063</b>	<b>-0.2</b>

## 4.0 2006 delineation and calculation of adjusted counts

For the second consecutive census, 2006 urban areas were delineated using an automated approach. With improvements to the national road network and, hence, the dissemination block structure, GArDS delineated 2006 urban areas using current census population counts, urban areas as defined for the 2001 Census, and dissemination blocks as defined for the 2006 Census. The 2001 delineation experience provided a set of expected errors for the 2006 delineation process, including potential over-bounding and inappropriate urban area mergers. Thus, the GArDS process was modified where possible and minimal manual updates were required.

Evaluation of the resulting 2006 urban area structure yielded some results that required further investigation. First, an unexpectedly high number of urban areas were retired and the impact of post-censal land area modifications was required to ensure that areas were not inappropriately removed. Secondly, population decline was experienced in many of the urban areas that remained in the program for 2006. As such, a quality assessment of the calculation of previous census adjusted population counts (2001 urban area population counts adjusted to 2006 urban area boundaries) was required.

Thirty-one urban areas were retired for 2006; this count is higher than in past censuses. An assessment of these was necessary to determine if the land area adjustment was an important factor in the retirement of any of the urban areas. Of those 31 retired urban areas, only five (or 16%) had post-2001 land area reductions greater than 40%. The boundaries of these areas were reviewed and the modifications deemed valid. Using 2001 Census population counts adjusted to the updated 2001 urban area boundary, it was determined that two of these five retired urban areas had a modified population count below 1,000, which would have excluded them from the 2001 urban area program if they had been more precisely delineated in 2001. The other three had modified population counts greater than 1,000; these were, therefore, deemed to be retired due to 'standard' population decline (natural decrease, out-migration).

The remaining 26 (84%) retired urban areas had little to no post-2001 land area updates (22 UAs had 0% adjustment, one UA experienced a 2% increase in land area and three UAs had less than 10% reduction) and were considered to have experienced true population decline. Thus, they were appropriately removed from the program as they no longer met the population requirement. One of these, Moose Factory (former UA 35 1273), is an area that was identified for the 2006 Census as an incompletely enumerated Indian Reserve. Concerns were raised that the area may have been incorrectly removed from the 2006 urban area program. However, given the information that was available following census collection activities, it was determined that it no longer met the population criteria, thus the urban area was retired.

The high rate of urban area retirement, combined with the lack of new urban areas, reduces the total number of urban areas to 895 in 2006, down from 913 in 2001. A brief summary of the 2006 delineation results shows that Saskatchewan had the highest number of urban areas retired from the program (nine) followed by Quebec and Manitoba, each of which saw five of its urban areas retired in 2006 (see Table 4.1). A complete summary of the changes to urban areas for 2006 is presented in Appendix C.

**Table 4.1 Urban area delineation summary, 2006**

	2001 urban areas		2006 urban areas		
	Total count <sup>1</sup>	Total count <sup>1</sup>	New	Retired	Merged
Newfoundland and Labrador	36	32	1	3	2
Prince Edward Island	7	7	0	0	0
Nova Scotia	39	36	0	3	0
New Brunswick	34	32	0	1	1
Quebec	229	226	3	5	1
Ontario	258	260	7	3	2
Manitoba	42	38	1	5	0
Saskatchewan	65	58	2	9	0
Alberta	108	107	1	2	0
British Columbia	93	95	4	0	2
Yukon Territory	1	1	0	0	0
Northwest Territories	3	3	0	0	0
Nunavut	3	5	2	0	0
<b>Canada</b>	<b>918</b>	<b>900</b>	<b>21</b>	<b>31</b>	<b>8</b>

1. The total count includes counts in both provinces for the five urban areas that straddle provincial boundaries (Campbellton [N.B. /Que.], Hawkesbury [Ont. /Que.], Ottawa – Gatineau [Ont. /Que.], Flin Flon [Man. /Sask.] and Lloydminster [Sask. /Alta.]).

The second result that required further investigation was the population decline in a higher than expected number of 2006 urban areas. Given the high number of urban areas that experienced post-censal land area adjustment, it was necessary to determine how much of the population decrease was due to shrinkage of the limits, as opposed to a decrease in the number of people within the area that remained part of the urban area. Such an assessment would provide an indication of the quality of the calculation of 2001 Census population counts adjusted to 2006 Census urban area boundaries, shown in Table 4.2.

**Table 4.2 Urban population, 2001 (adjusted and modified) and 2006**

	2006	2001 adjusted	Percent change (%)	2001 modified <sup>1</sup>	Percent change (%)
	Count	Count		Count	
Newfoundland and Labrador	292,099	293,500	-0.5	293,154	-0.4
Prince Edward Island	61,173	60,967	0.3	60,675	0.8
Nova Scotia	506,932	505,583	0.3	507,009	0.0
New Brunswick	372,935	368,643	1.2	367,649	1.4
Quebec	6,050,346	5,816,257	4.0	5,794,054	4.4
Ontario	10,351,135	9,688,420	6.8	9,656,639	7.2
Manitoba	820,922	801,444	2.4	805,222	1.9
Saskatchewan	628,913	624,931	0.6	629,016	0.0
Alberta	2,699,851	2,406,059	12.2	2,403,015	12.4
British Columbia	3,511,300	3,329,584	5.5	3,302,352	6.3
Yukon Territory	18,122	16,843	7.6	16,843	7.6
Northwest Territories	24,216	21,831	10.9	21,831	10.9
Nunavut	12,799	11,897	7.6	8,689	47.3
<b>Canada</b>	<b>25,350,743</b>	<b>23,945,959</b>	<b>5.9</b>	<b>23,866,148</b>	<b>6.2</b>

1. 2001 modified counts adjusted to 2006 boundaries.

To do this, the 2001 modified and the 2001 adjusted populations of the urban areas that experienced post-censal land area reduction were reviewed. Of the 412 UAs that experienced land area reduction, 219 (or 53%) had modified population decline between 2001 and 2006, compared to 208 (or 51%) that had an adjusted population decline. To assess the nature of the urban population decline, all urban areas were reviewed in two different ways: first at a dissemination block level, then according to urban area population size groups.

Dissemination block analysis reviewed all 2001 blocks that belonged to a 2001 urban area and related them to 2006 urban areas. The blocks were then categorized according to the criteria presented in Table 4.3.

**Table 4.3 2001 block to 2006 urban area relationship**

Category	Description	2001 blocks	
		Count	Percent
A	Stayed completely within	243,255	97.9
B	Completely removed	2,817	1.1
C	Partly stayed in	123	0.0
D	Completely added	1,795	0.7
E	Partly added	451	0.2

Table 4.3 shows that about 98% of all 2001 blocks completely remained in an urban area following post-censal boundary update and 2006 urban area delineation. These blocks are considered to be the core blocks of all 2006 urban areas since they are the common intersect between 2001 and 2006 final urban areas. After linking these core blocks to 2006 dissemination blocks to review the adjusted population, it was determined that they contained 99% of the 2001 adjusted population for all 2006 urban areas, an excellent indication that the population decline was not due to post-censal boundary updates.

Table 4.4 shows that all provinces and territories, with the exception of Newfoundland and Labrador and Nunavut (at 90% and 73%, respectively) had core dissemination block adjusted population proportions above 98%.

**Table 4.4 Urban population of 2006 urban areas, by province, showing 2001 adjusted population and summary of Category A urban population**

	2006 urban population	2001 adjusted urban population	2001 Category A adjusted population	Category A population as a proportion of 2001 adjusted population (%)
Newfoundland and Labrador	292,099	293,500	263,114	89.6
Prince Edward Island	61,173	60,967	60,675	99.5
Nova Scotia	506,932	505,583	503,920	99.7
New Brunswick	372,935	368,643	362,436	98.3
Quebec	6,050,346	5,816,257	5,709,146	98.2
Ontario	10,351,135	9,688,420	9,637,225	99.5
Manitoba	820,922	801,444	799,544	99.8
Saskatchewan	628,913	624,931	619,638	99.2
Alberta	2,699,851	2,406,059	2,399,918	99.7
British Columbia	3,511,300	3,329,584	3,297,572	99.0
Yukon Territory	18,122	16,843	16,843	100.0
Northwest Territories	24,216	21,831	21,831	100.0
Nunavut	12,799	11,897	8,689	73.0
<b>Canada</b>	<b>25,350,743</b>	<b>23,945,959</b>	<b>23,700,551</b>	<b>99.0</b>

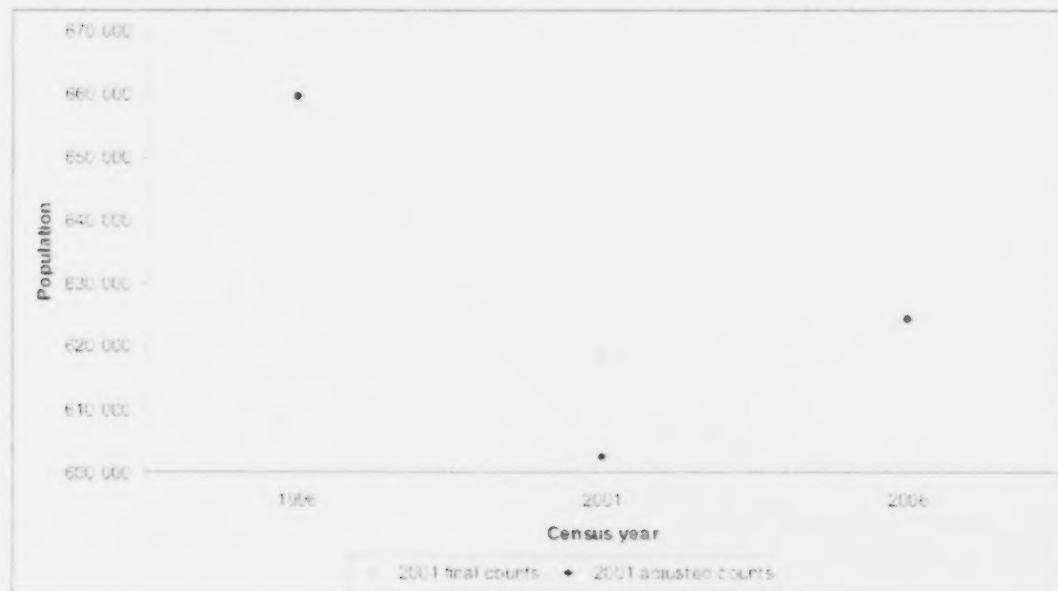
Urban areas were then assessed by urban population size groups. According to the *2006 Census Dictionary*, an "urban population size group" refers to the classification used in standard tabulations where urban areas are distributed according to the following predetermined size groups, based on the current census population":

**Table 4.5 Urban population size groups, 2006 Census**

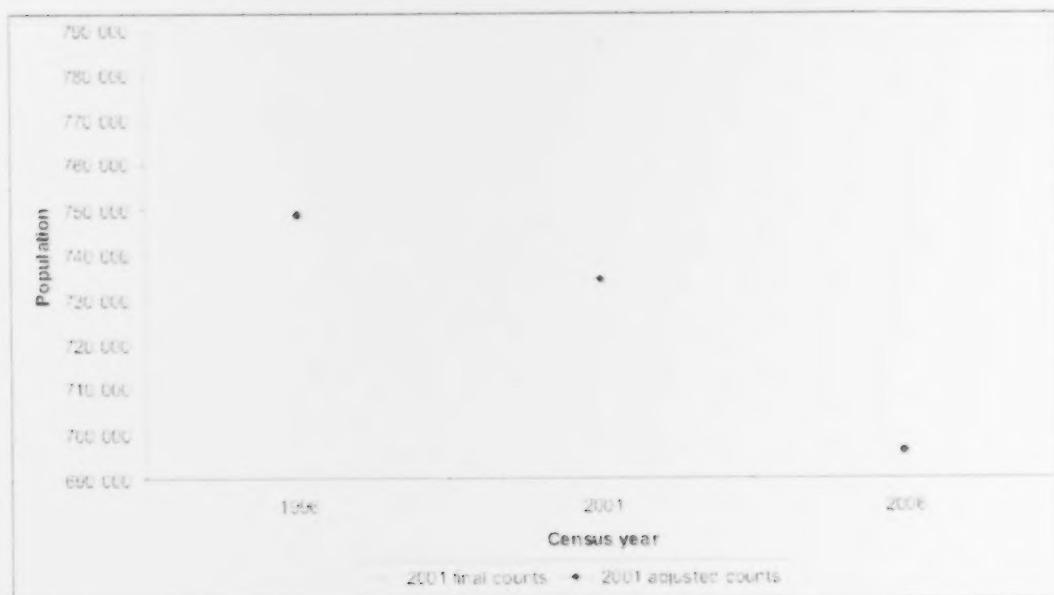
Urban area size group	Population
A	1,000 to 2,499
B	2,500 to 4,999
C	5,000 to 9,999
D	10,000 to 24,999
E	25,000 to 49,999
F	50,000 to 99,999
G	100,000 to 499,999
H	500,000 and over

The final and adjusted population counts of all urban areas within each urban population size groups were summed for the 1996, 2001 and 2006 Censuses and the results displayed graphically. The expected results were smooth linear trends, regardless of direction (population growth or decline), although most groups were expected to experience population increase. The actual results, in general, indicated much variance, particularly between the final and adjusted counts in 2001 (see Figure 4.1 to 4.8). Neither the final nor the adjusted population counts for each of the groups, with the exception of groups D, G and H, presented results in the expected trend. An important consideration at this point was it is likely for urban areas to switch size groups between censuses, particularly if the population of an urban area borders another size group.

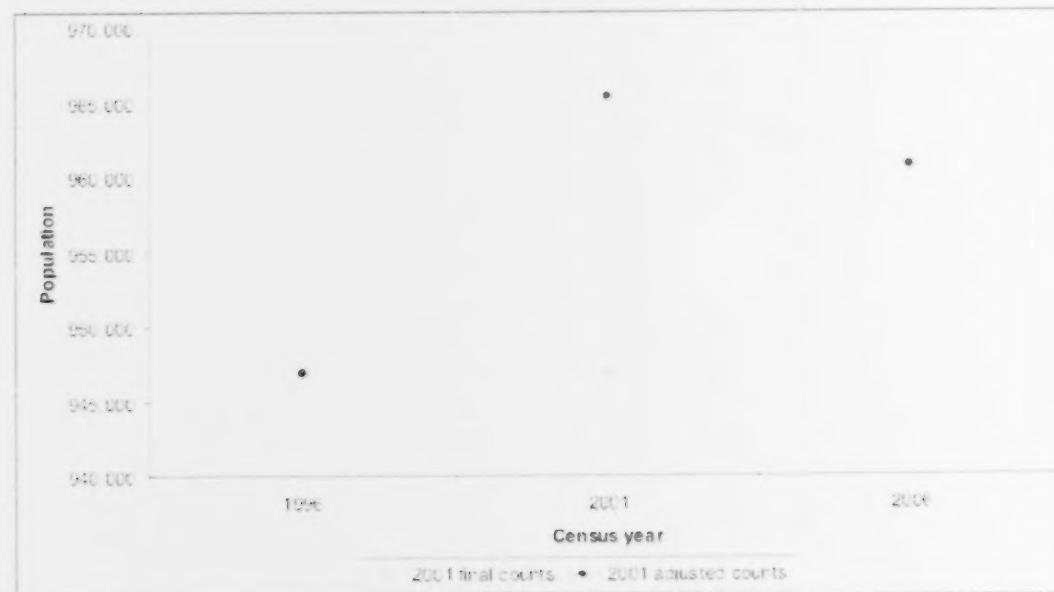
**Figure 4.1 Urban population of urban area size A group (1,000 to 2,499) - uncontrolled, 1996, 2001 (final and adjusted), and 2006**



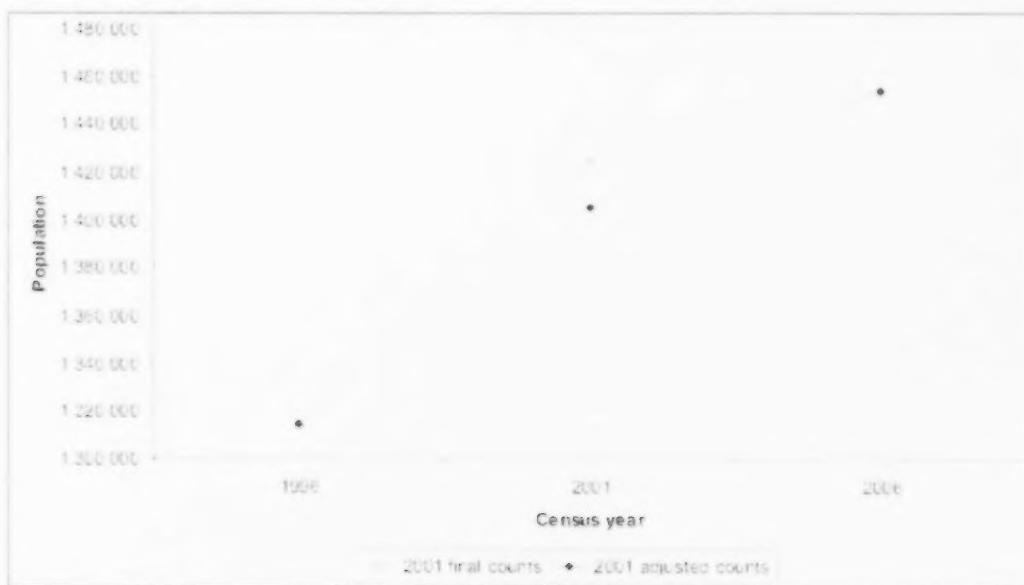
**Figure 4.2 Urban population of urban area size B group (2,500 to 4,999) - uncontrolled, 1996, 2001 (final and adjusted), and 2006**



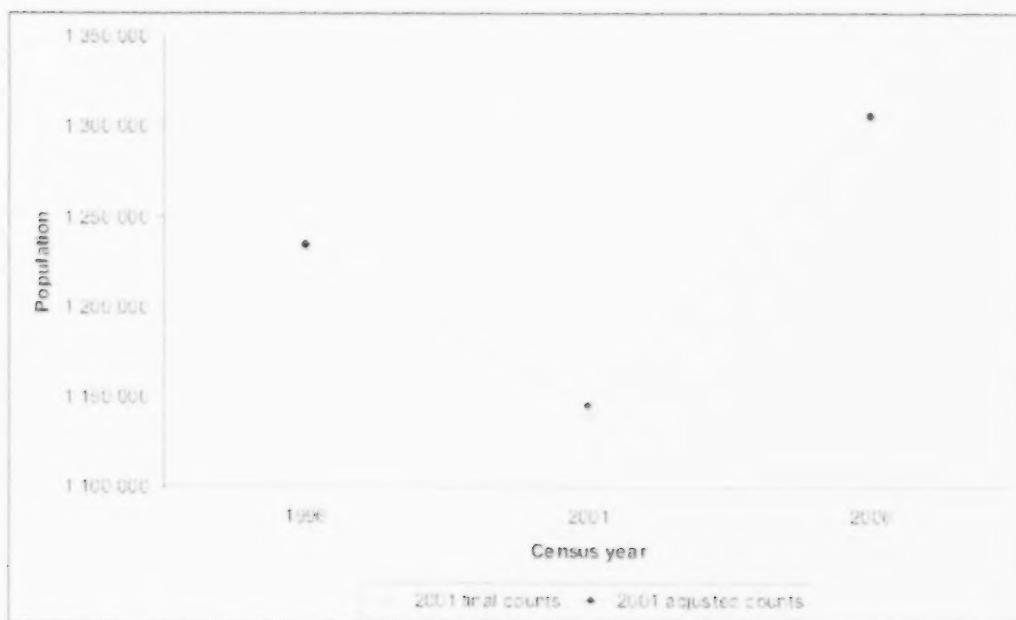
**Figure 4.3 Urban population of urban area size C group (5,000 to 9,999) - uncontrolled, 1996, 2001 (final and adjusted), and 2006**



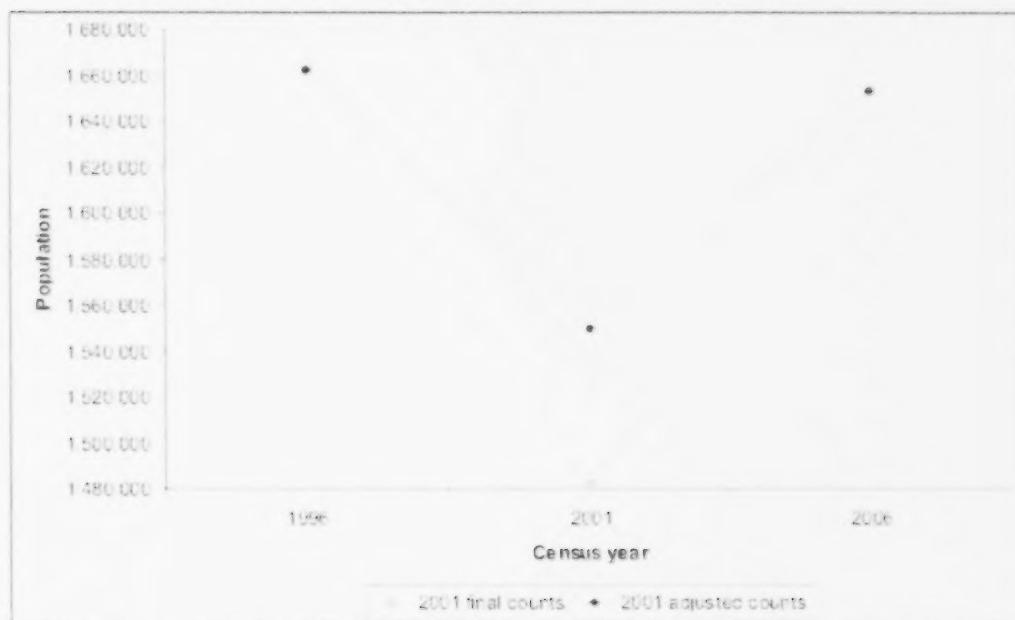
**Figure 4.4 Urban population of urban area size D group (10,000 to 24,999) - uncontrolled, 1996, 2001 (final and adjusted), and 2006**



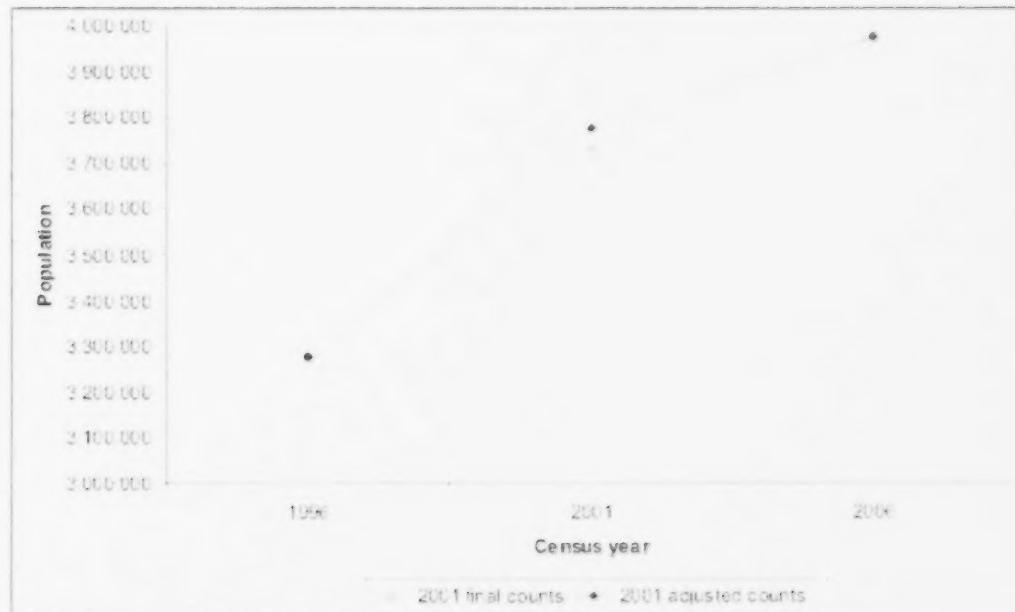
**Figure 4.5 Urban population of urban area size E group (25,000 to 49,999) - uncontrolled, 1996, 2001 (final and adjusted), and 2006**



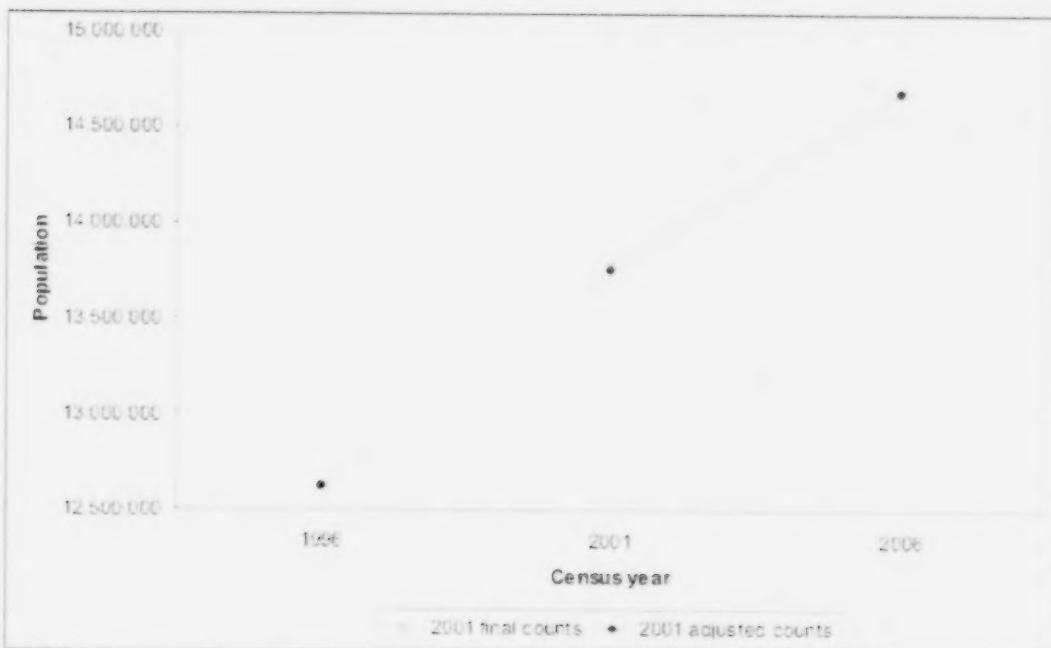
**Figure 4.6 Urban population of urban area size F group (50,000 to 99,999) - uncontrolled, 1996, 2001 (final and adjusted), and 2006**



**Figure 4.7 Urban population of urban area size G group (100,000 to 499,999) - uncontrolled, 1996, 2001 (final and adjusted), and 2006**



**Figure 4.8 Urban population of urban area size H group (500,000 and over) - uncontrolled, 1996, 2001 (final and adjusted), and 2006**



Once the size groups were controlled to include only urban areas that remained in the same size groups between censuses, expected population trends started to emerge. The smallest urban areas, those with a population less than 5,000 (groups A and B), showed population increases between 1996 and 2001, and population decreases between 2001 and 2006, regardless of whether the counts were final or adjusted. All other urban area size groups showed incremental population growth between all three censuses.

To assess whether the population decline in the two smallest urban size groups was due to true population decline or to post-censal boundary corrections, the urban areas were further controlled by assessing only those dissemination blocks that remained completely within both the 2001 urban areas following adjustment and the 2006 urban areas (i.e., blocks that were common, or represent the intersect of 2001 adjusted and 2006 final urban areas). Results showed that population of the small urban areas experienced continual decline between 2001 and 2006. Although the population counts of the controlled dissemination blocks were lower than those of the complete set of dissemination blocks belonging to the 2001 and 2006 urban areas, the population trends were consistent. This indicates that the population decline experienced by urban areas in these size groups was indeed due to standard population decline in those areas, rather than to urban area adjustment (see Figure 4.9 to 4.16).

**Figure 4.9 Urban population by urban area size group A (1,000 to 2,499) - controlled, 1996, 2001 (final and adjusted), and 2006**



**Figure 4.10 Urban population by urban area size group B (2,500 to 4,999) - controlled, 1996, 2001 (final and adjusted), and 2006**



**Figure 4.11 Urban population by urban area size group C (5,000 to 9,999) - controlled, 1996, 2001 (final and adjusted), and 2006**



**Figure 4.12 Urban population by urban area size group D (10,000 to 24,999) - controlled, 1996, 2001 (final and adjusted), and 2006**



**Figure 4.13 Urban population by urban area size group E (25,000 to 49,999) - controlled, 1996, 2001 (final and adjusted), and 2006**



**Figure 4.14 Urban population by urban area size group F (50,000 to 99,999) - controlled, 1996, 2001 (final and adjusted), and 2006**



**Figure 4.15 Urban population by urban area size group G (100,000 to 499,999) - controlled, 1996, 2001 (final and adjusted), and 2006**



**Figure 4.16 Urban population by urban area size group H (500,000 and over) - controlled, 1996, 2001 (final and adjusted), and 2006**



## 5.0 Conclusion

Notwithstanding the population decline in the smaller urban population size groups, a continual decrease in the number of urban areas in Canada since 1996, and the post-censal boundary updates of 2001 urban areas, the population of urban areas, in general, is increasing (see Table 5.1). This trend is consistent with the expected results evaluated while assessing the quality of 2001 urban area population counts adjusted to 2006 urban area boundaries.

**Table 5.1 Urban populations by province, 1996, 2001 (modified and adjusted), and 2006**

	1996		2001			2006		
	Count	%	Modified count	%	Adjusted count	%	Count	%
Newfoundland and Labrador	313,819	56.9	274,413	57.2	293,500	57.2	292,099	57.8
Prince Edward Island	59,460	44.2	60,675	45.1	60,967	45.1	61,173	45.0
Nova Scotia	497,858	54.8	507,009	55.7	505,583	55.7	506,932	55.5
New Brunswick	360,421	48.8	365,732	50.5	368,643	50.5	372,935	51.1
Quebec	5,597,625	78.4	5,812,433	80.4	5,816,257	80.4	6,050,346	80.2
Ontario	8,958,741	83.3	9,655,135	84.9	9,688,420	84.9	10,351,135	85.1
Manitoba	800,063	71.8	805,321	71.6	801,444	71.6	820,922	71.5
Saskatchewan	627,178	63.3	629,036	63.8	624,931	63.8	628,913	65.0
Alberta	2,142,815	79.5	2,405,160	80.9	2,406,059	80.9	2,699,851	82.1
British Columbia	3,057,388	82.1	3,305,913	85.2	3,329,584	85.2	3,511,300	85.4
Yukon Territory	18,447	60.0	16,843	58.7	16,843	58.7	18,122	59.7
Northwest Territories	27,395	42.5	21,831	58.4	21,831	58.4	24,216	58.4
Nunavut	...	...	8,689	44.5	11,897	44.5	12,799	43.4
<b>Canada</b>	<b>22,461,210</b>	<b>77.9</b>	<b>23,868,190</b>	<b>79.8</b>	<b>23,945,959</b>	<b>79.8</b>	<b>25,350,743</b>	<b>80.2</b>

... not applicable

**Note:** The territory of Nunavut came into effect on April 1, 1999; thus population counts for Nunavut were not published in 1996.

The change in the urban areas delineating methodology in 2001 from a manual enumeration area-based approach to an automated block-based approach has improved the efficiency and effectiveness of urban area delineation. Although 2001 urban areas were over-bounded, post-censal updates and more rigorous post-delineation evaluations have resulted in more reasonable urban area boundaries for 2006. Moreover, the quality of the 2006 final and 2001 adjusted population counts have been determined to be good.

To continue to improve the quality of our geographic areas, some improvements could be considered for 2011 urban area delineation that may contribute to the relevance of census output available at the urban area level. These include more stringent population regulations during delineation and the creation of applied regulations to take incompletely enumerated areas, such as Indian Reserves, into account. Since urban areas are delineated based on current census population counts prior to rounding and suppression, quantitative measures, such as confidence intervals, could be applied so that urban areas with an unrounded population count falling just below 1,000 (995 to 999) would be included. Now that data are available at the block level, methodology should be created to consider those areas facing data suppression before delineation. It should also be considered that urban area delineation could be based on rounded and suppressed counts. Now that delineation is automated and takes considerably less time, block-level rounding and suppression could be run prior to urban area delineation.

## Appendix A Urban area delineation methodology

**Definition:** An urban area has a minimum population concentration of 1,000 persons and a population density of at least 400 persons per square kilometre, based on the current census population count. All territory outside urban areas is classified as rural. Taken together, urban and rural areas cover all of Canada.

Urban population includes all population living in the urban cores, secondary urban cores and urban fringes of census metropolitan areas (CMAs) and census agglomerations (CAs), as well as the population living in urban areas outside CMAs and CAs.

### Delineation rules

The urban area delineation rules are ranked in order of priority:

1. If an urban area from the previous census has a minimum population of 1,000 persons according to the current census, it is retained as an urban area.
2. If a dissemination block with a population density of at least 400 persons per square kilometre is adjacent to an urban area, then it is added to that urban area.
3. If a dissemination block or group of contiguous dissemination blocks, each having a population density of at least 400 persons per square kilometre for the current census, has a minimum total population of 1,000, then the dissemination block or group of contiguous dissemination blocks is delineated as a new urban area.
4. The distance by road between urban areas is measured. If the distance is less than two kilometres, then the urban areas are combined to form a single urban area, provided they do not cross census metropolitan area (CMA) or census agglomeration area (CA) boundaries.
5. If an urban area is contained **within** a census subdivision (CSD), the difference in land area between the urban area and the CSD is calculated. For confidentiality purposes, if the difference between the CSD and the urban area is less than 10 square kilometres, then the boundary for the urban area is adjusted to the CSD boundary.
6. If an urban area is contained **within** a designated place (DPL), the difference in land area between the urban area and the DPL is calculated. For confidentiality purposes, if the difference is less than 10 square kilometres **and** the remaining population is less than 100, then the urban area will annex the entire DPL.

The resulting urban areas are reviewed and may be modified to ensure spatial contiguity where appropriate, for example, the removal of interior holes.

Some urban areas may contain commercial and industrial districts, railway yards, airports, parks and other uninhabited areas that result in dissemination blocks with population densities of less than 400 persons per square kilometre. In general, the impact on the total population within urban areas is minor, but the impact on specific urban land areas could be significant. This would affect any programs or research based on precise distance or land area measurements related to individual urban areas.

Once an urban area attains a population of 10,000 persons, it is eligible to become the urban core of a census agglomeration (CA). Once an urban area attains a population of 50,000 **and** is the urban core of a census agglomeration with a minimum total population of 100,000, then it is eligible to become the urban core of a census metropolitan area (CMA). When an urban area with a population of at least 50,000 persons is also the urban core of a census agglomeration, the census agglomeration is eligible for the census tract program.

Urban and rural areas may be used as variables to cross-classify census data for standard geographic areas, such as census subdivisions, census metropolitan areas/census agglomerations, or census metropolitan area and census agglomeration influenced zones (MIZ).

**Naming convention for urban areas**

The name of the urban area is the name of the principal census subdivision (CSD) when the CSD is (or was) a city, town or village. If two or more principal CSDs are involved, the urban area may be given a compound name. In other cases, the name of the urban area is the most appropriate place name.

**Geographic code for urban areas**

Urban area codes are unique four-digit codes that are assigned sequentially upon the UA creation. These codes remain constant between censuses. If an urban area is retired due to amalgamation or failure to meet the population or density thresholds, then its code is retired.

It is recommended that the two-digit province code precede the UA code in order to identify each UA uniquely within its corresponding province/territory. For example:

PR-UA code	UA name
11 0159	Charlottetown (P.E.I.)
13 0122	Campbellton (N.B.)
24 0122	Campbellton (Que.)
46 0282	Flin Flon (Man.)
47 0282	Flin Flon (Sask.)
60 1023	Whitehorse (Y.T.)

**Definitional changes between Censuses**

Prior to 2006, designated places (DPLs) were not required to respect urban area boundaries, thus overlapping occurred. In such cases, delineation rule number 6 incorporated the DPL in its logic. In essence, if an urban area was contained within a DPL, the difference in land area between the urban area and the DPL was calculated. If this difference was less than 10 square kilometres, then, for confidentiality purposes, the boundary for the urban area was adjusted to the DPL boundary.

In 2001, the delineation of urban areas became an automated process that made it possible to use population counts and population density data from the current census.

Prior to 2001, the geographic units used for urban area delineation were census subdivisions, designated places and enumeration areas. Population counts and population density from the previous census were used in all cases, except when enumeration area boundaries had been adjusted for the current census.

For 1976, urban areas contained a population concentration of at least 1,000 persons and a population density of at least 1,000 persons per square mile (386 per square kilometre). Urban areas were combined if they were separated by less than one mile (1.6 kilometres).

For 1971, 1966 and 1961, urban areas included:

- all incorporated cities, towns and villages with a population of 1,000 persons or over;
- all unincorporated places with a population of 1,000 persons or over and a population density of at least 1,000 persons per square mile; and
- the urbanized fringe of these urban areas, known as the urbanized core of a census agglomeration or census metropolitan area, where a minimum population of 1,000 persons and a density of at least 1,000 persons per square mile existed.

## Appendix B 2001 Urban areas post-censally updated showing land area modification

Table B.1 2001 Urban areas post-censally updated showing land area modification

Urban area		Published urban land area in squared kilometres	Modified urban land area in squared kilometres	Difference in squared kilometres (published minus modified)	Percent change (%)
Code	Name				
0001	Acton	15.8514	15.8513	-0.0001	0.00
0005	Alençon	2.9890	2.9888	-0.0002	-0.01
0009	Alma	110.4676	40.9086	-69.5590	-62.97
0010	Almonte	4.4841	4.4840	-0.0001	0.00
0011	Altona	9.4585	9.3886	-0.0699	-0.74
0015	Amos	36.8448	7.7634	-29.0814	-78.93
0016	Amqui	7.7622	5.1233	-2.6389	-34.00
0019	Antigonish	5.7622	5.7619	-0.0003	-0.01
0020	Armstrong	5.2318	5.2317	-0.0001	0.00
0023	Asbestos	29.9702	20.5944	-9.3758	-31.28
0025	Assiniboia	3.7796	3.7795	-0.0001	0.00
0036	Baie-Comeau	11.2966	11.2961	-0.0005	0.00
0037	Baie-Saint-Paul	5.7306	5.7303	-0.0003	-0.01
0040	Banff	4.8493	4.8492	-0.0001	0.00
0042	Barrhead	8.1399	8.0991	-0.0408	-0.50
0044	Barry's Bay	2.5505	2.5486	-0.0019	-0.07
0045	Bathurst	64.9154	64.9150	-0.0004	0.00
0046	Bay Roberts	47.8489	47.8385	-0.0104	-0.02
0047	Beauceville	26.4257	6.6665	-19.7592	-74.77
0063	Beloeil	46.2062	46.2020	-0.0042	-0.01
0066	Bernierville	1.9198	1.9196	-0.0002	-0.01
0067	Berthierville	7.2538	7.2536	-0.0002	0.00
0074	Blairmore	3.8983	3.8953	-0.0030	-0.08
0076	Blind River	13.0508	13.0446	-0.0062	-0.05
0077	Bobcaygeon	5.5637	5.5635	-0.0002	0.00
0079	Saint-Martin	53.4544	3.2967	-50.1577	-93.83
0080	Bolton	11.8568	11.8560	-0.0008	-0.01
0081	Bonaventure	3.5101	3.4882	-0.0219	-0.62
0082	Bonavista	7.2345	4.3651	-2.8694	-39.66
0086	Bow Island	5.9201	5.9199	-0.0002	0.00
0088	Bracebridge	11.9484	11.9481	-0.0003	0.00
0089	Bradford	9.0810	9.0711	-0.0099	-0.11
0096	Bridgewater	13.7934	13.7895	-0.0039	-0.03
0107	Burgeo	31.3363	1.9792	-29.3571	-93.68
0111	Cabano	7.0282	4.0948	-2.9334	-41.74
0119	Campbell River	38.6977	38.5697	-0.1280	-0.33
0121	Campbellford	6.1691	3.6035	-2.5656	-41.59

**Table B.1 2001 Urban areas post-censally updated showing land area modification  
(continued)**

<b>Urban area</b>		<b>Published urban land area in squared kilometres</b>	<b>Modified urban land area in squared kilometres</b>	<b>Difference in squared kilometres (published minus modified)</b>	<b>Percent change (%)</b>
<b>Code</b>	<b>Name</b>				
0122	Campbellton	40.9261	25.3992	-15.5269	-37.94
0125	Canmore	26.2001	12.4451	-13.7550	-52.50
0129	Cap-aux-Meules	3.5975	3.5095	-0.0880	-2.45
0136	Carbonear	25.5607	25.5577	-0.0030	-0.01
0137	Cardinal	2.0380	2.0379	-0.0001	0.00
0142	Carman	4.1242	4.1238	-0.0004	-0.01
0143	Carnduff	1.9642	1.9539	-0.0103	-0.52
0144	Casselman	4.9960	4.9959	-0.0001	0.00
0150	Cayuga	1.9913	1.9829	-0.0084	-0.42
0154	Chandler	4.0469	4.0468	-0.0001	0.00
0155	Channel-Port aux Basques	38.7650	5.7086	-33.0564	-85.27
0156	Chapais	63.6433	4.4385	-59.2048	-93.03
0157	Chapleau	15.0193	14.2707	-0.7486	-4.98
0159	Charlottetown	57.7512	57.7499	-0.0013	0.00
0162	Château-Richer	5.8249	2.9239	-2.9010	-49.80
0170	Chesley	2.9759	2.9757	-0.0002	-0.01
0174	Chetwynd	41.4335	10.9704	-30.4631	-73.52
0175	Chibougamau	72.6447	5.1233	-67.5214	-92.95
0177	Chilliwack	81.2419	80.9351	-0.3068	-0.38
0181	Chute-aux-Outardes	7.3264	7.3261	-0.0003	0.00
0190	Cobourg	22.3720	22.3716	-0.0004	0.00
0192	Cochrane	7.7959	7.7958	-0.0001	0.00
0197	Coleraine	41.6239	5.0109	-36.6130	-87.96
0198	Collingwood	20.0473	20.0449	-0.0024	-0.01
0201	Contrecoeur	10.1801	5.8470	-4.3331	-42.56
0205	Cornwall	77.1936	76.8833	-0.3103	-0.40
0210	Cranbrook	17.9012	17.7974	-0.1038	-0.58
0215	Dauphin	12.6525	12.6523	-0.0002	0.00
0218	Deep River	7.7391	7.7102	-0.0289	-0.37
0219	Deer Lake	45.7458	7.9874	-37.7584	-82.54
0220	Dégelis	15.4103	2.0604	-13.3499	-86.63
0221	Delhi	5.4639	2.8676	-2.5963	-47.52
0226	Devon	8.6863	8.6267	-0.0596	-0.69
0227	Didsbury	5.4672	5.4669	-0.0003	-0.01
0229	Digby	3.1499	3.1391	-0.0108	-0.34
0233	Donnacona	13.6784	9.4796	-4.1988	-30.70
0237	Drayton Valley	7.9599	7.9310	-0.0289	-0.36
0241	Dryden	15.4203	15.4201	-0.0002	0.00
0243	Duncan	86.6052	34.8837	-51.7215	-59.72

**Table B.1 2001 Urban areas post-censally updated showing land area modification  
(continued)**

Urban area		Published urban land area in squared kilometres	Modified urban land area in squared kilometres	Difference in squared kilometres (published minus modified)	Percent change (%)
Code	Name				
0247	Dunville	10.1815	10.1801	-0.0014	-0.01
0256	Eganville	3.8438	3.8437	-0.0001	0.00
0257	Elliot Lake	12.1047	12.1043	-0.0004	0.00
0258	Elmira	29.1436	19.3854	-9.7582	-33.48
0259	Elmvale	10.1548	2.5099	-7.6449	-75.28
0260	Embrun	12.4286	9.0526	-3.3760	-27.16
0265	Erin	4.6093	4.6090	-0.0003	-0.01
0266	Les Escoumins	253.9000	2.8537	-251.0463	-98.88
0272	Exeter	5.3319	5.3318	-0.0001	0.00
0274	Fairview	9.5071	9.5027	-0.0044	-0.05
0280	Fernie	16.6634	16.6622	-0.0012	-0.01
0282	Flin Flon	16.2537	16.2534	-0.0003	0.00
0286	Forestville	32.4152	7.6061	-24.8091	-76.54
0290	Fort Frances	12.5687	12.5286	-0.0401	-0.32
0299	Fort-Coulonge	12.5483	5.9245	-6.6238	-52.79
0301	Fox Creek	7.6272	2.3324	-5.2948	-69.42
0302	Saint-Apollinaire	9.7858	1.0302	-8.7556	-89.47
0303	Frankford	5.3914	2.5952	-2.7962	-51.86
0304	Fraser Lake	3.8957	3.8955	-0.0002	-0.01
0306	Iqaluit	52.3430	52.3429	-0.0001	0.00
0310	Gananoque	7.2864	7.0115	-0.2749	-3.77
0311	Gander	27.7404	6.6843	-21.0561	-75.90
0315	Geraldton	3.9108	3.9104	-0.0004	-0.01
0318	Glace Bay	35.1482	35.1478	-0.0004	0.00
0321	Glencoe	2.9690	2.9683	-0.0007	-0.02
0325	Gold River	10.6543	10.6542	-0.0001	0.00
0329	Grand Bank	8.6050	2.2989	-6.3061	-73.28
0330	Grand Centre	114.9227	29.2214	-85.7013	-74.57
0331	Grand Falls (Grand-Sault)	18.0640	18.0639	-0.0001	0.00
0332	Grand Falls-Windsor	42.7772	24.0498	-18.7274	-43.78
0333	Grand Forks	10.5716	10.5692	-0.0024	-0.02
0335	Grande Cache	35.4804	4.9925	-30.4879	-85.93
0336	Grande Prairie	41.4155	41.3547	-0.0608	-0.15
0337	Grande-Rivière	3.2699	2.8164	-0.4535	-13.87
0342	Grimshaw	7.2071	7.2063	-0.0008	-0.01
0343	Guelph	78.3884	78.3877	-0.0007	0.00
0346	Hagersville	3.1933	3.1416	-0.0517	-1.62
0350	Hampton	9.3647	9.3646	-0.0001	0.00

**Table B.1 2001 Urban areas post-censally updated showing land area modification  
(continued)**

Urban area		Published urban land area in squared kilometres	Modified urban land area in squared kilometres	Difference in squared kilometres (published minus modified)	Percent change (%)
Code	Name				
0360	Harrow	2.8717	2.8716	-0.0001	0.00
0364	Havre-Saint-Pierre	4.4831	4.2064	-0.2767	-6.17
0365	Hawkesbury	12.4411	12.1942	-0.2469	-1.98
0368	Saint-Bruno	13.6044	7.6846	-5.9198	-43.51
0383	Huntsville	34.5472	13.3644	-21.1828	-61.32
0386	Ingersoll	12.9225	12.8959	-0.0266	-0.21
0388	Inuvik	5.0405	5.0402	-0.0003	-0.01
0392	Iroquois Falls	9.0320	9.0318	-0.0002	0.00
0396	Joliette	44.1971	44.1961	-0.0010	0.00
0399	Kanata	42.6651	42.6646	-0.0005	0.00
0400	Kapuskasing	25.5808	17.4826	-8.0982	-31.66
0401	Kedgwick	4.2597	4.2596	-0.0001	0.00
0405	Kemptville	9.7604	3.2124	-6.5480	-67.09
0406	Kenora	30.6369	30.5624	-0.0745	-0.24
0410	Killarney	5.1565	5.0989	-0.0576	-1.12
0412	Kincardine	9.9797	9.9239	-0.0558	-0.56
0418	Kirkland Lake	163.8408	8.9074	-154.9334	-94.56
0420	Kitimat	35.0929	10.2833	-24.8096	-70.70
0421	L'Annonciation	10.8000	10.6407	-0.1593	-1.48
0424	L'Épiphanie	2.8322	2.8321	-0.0001	0.00
0430	La Malbaie	9.4461	9.4458	-0.0003	0.00
0432	La Pocatière	4.8581	4.8571	-0.0010	-0.02
0434	La Sarre	72.8438	14.0939	-58.7499	-80.65
0438	Labrador City	24.3746	24.3745	-0.0001	0.00
0439	Lac la Biche	6.1758	6.1757	-0.0001	0.00
0442	Lac-Etchemin	5.2348	5.2335	-0.0013	-0.02
0446	Lacombe	19.8633	18.2439	-1.6194	-8.15
0447	Ladysmith	10.0427	10.0376	-0.0051	-0.05
0449	Lake Cowichan	8.6979	8.6962	-0.0017	-0.02
0450	Lakefield	2.8673	2.8589	-0.0084	-0.29
0453	Langenburg	3.4558	3.4556	-0.0002	-0.01
0458	Laurentides	11.8535	6.7754	-5.0781	-42.84
0460	Lavaltrie	3.9450	3.9436	-0.0014	-0.04
0463	Leamington	24.4528	24.3782	-0.0746	-0.31
0464	Lebel-sur-Quévillon	40.1355	7.7002	-32.4353	-80.81
0465	Leduc	36.9702	36.9693	-0.0009	0.00
0468	Onaping - Levack	41.8123	8.1254	-33.6869	-80.57
0469	Lewisporte	18.7085	7.5310	-11.1775	-59.75
0470	Lillooet	16.3154	3.9569	-12.3585	-75.75

**Table B.1 2001 Urban areas post-censally updated showing land area modification  
(continued)**

Urban area		Published urban land area in squared kilometres	Modified urban land area in squared kilometres	Difference in squared kilometres (published minus modified)	Percent change (%)
Code	Name				
0472	Lindsay	17.0730	17.0729	-0.0001	0.00
0473	Linière	16.0922	1.2228	-14.8694	-92.40
0475	Little Current	2.7711	2.7710	-0.0001	0.00
0480	London	217.1927	217.1428	-0.0499	-0.02
0481	Longlac	1.8294	1.8293	-0.0001	-0.01
0489	Lucknow	5.8455	1.7471	-4.0984	-70.11
0492	Macamic	5.3372	5.3371	-0.0001	0.00
0494	Madoc	19.6221	2.3914	-17.2307	-87.81
0499	Manitouwadge	4.7369	4.7368	-0.0001	0.00
0500	Maniwaki	40.6570	5.9054	-34.7516	-85.48
0501	Manning	3.4236	3.4232	-0.0004	-0.01
0502	Maple Creek	4.4224	4.4221	-0.0003	-0.01
0504	Marathon	5.2945	5.2944	-0.0001	0.00
0506	Markdale	3.1188	3.1187	-0.0001	0.00
0509	Marystown	24.5756	13.3417	-11.2339	-45.71
0515	Matane	24.7953	24.7945	-0.0008	0.00
0518	McAdam	14.4668	14.4666	-0.0002	0.00
0521	Meadow Lake	7.6350	7.6346	-0.0004	-0.01
0522	Meaford	7.1727	7.1723	-0.0004	-0.01
0523	Medicine Hat	122.6516	122.5149	-0.1367	-0.11
0525	Melita	2.9668	2.9665	-0.0003	-0.01
0532	Milton	13.0479	13.0475	-0.0004	0.00
0533	Milverton	5.7799	1.6071	-4.1728	-72.20
0538	Mitchell	5.7442	5.7439	-0.0003	-0.01
0541	Mont-Laurier	5.6339	5.6337	-0.0002	0.00
0544	Montague	3.0490	3.0485	-0.0005	-0.02
0547	Montréal	1,740.1685	1,736.7305	-3.4380	-0.20
0553	Morden	12.8608	12.8607	-0.0001	0.00
0561	Hébertville	43.9153	0.7782	-43.1371	-98.23
0565	Notre-Dame-du-Lac	3.5102	3.5099	-0.0003	-0.01
0568	Nanaimo	178.5165	101.6271	-76.8894	-43.07
0569	Napanee	32.6680	7.7514	-24.9166	-76.27
0570	Napierville	4.4253	4.4252	-0.0001	0.00
0591	Normandin	17.5346	1.9115	-15.6231	-89.10
0595	North Bay	133.7999	133.7894	-0.0105	-0.01
0600	Norwood	8.9966	1.8172	-7.1794	-79.80
0606	Okotoks	17.9164	17.9115	-0.0049	-0.03
0608	Oliver	5.3520	5.3007	-0.0513	-0.96
0609	Orangeville	31.1234	31.1228	-0.0006	0.00
0610	Orillia	28.6061	28.6060	-0.0001	0.00

**Table B.1 2001 Urban areas post-censally updated showing land area modification  
(continued)**

<b>Urban area</b>		<b>Published urban land area in squared kilometres</b>	<b>Modified urban land area in squared kilometres</b>	<b>Difference in squared kilometres (published minus modified)</b>	<b>Percent change (%)</b>
<b>Code</b>	<b>Name</b>				
0611	Ormstown	1.7892	1.7891	-0.0001	-0.01
0616	Ottawa - Hull	490.3180	489.7597	-0.5583	-0.11
0622	Palmerston	2.5024	2.5022	-0.0002	-0.01
0623	Papineauville	6.7268	6.2639	-0.4629	-6.88
0625	Parkhill	2.6437	2.6433	-0.0004	-0.02
0628	Parry Sound	13.3327	13.3324	-0.0003	0.00
0632	Penticton	85.4850	85.1290	-0.3560	-0.42
0634	Perth	10.4146	10.4104	-0.0042	-0.04
0635	Perth-Andover	9.2709	8.8503	-0.4206	-4.54
0636	Peterborough	71.0243	70.7109	-0.3134	-0.44
0639	Petrolia	14.9829	14.9827	-0.0002	0.00
0642	Pictou	7.9410	7.9401	-0.0009	-0.01
0645	Pinawa	50.9833	3.7413	-47.2420	-92.66
0646	Pincher Creek	6.6096	6.6095	-0.0001	0.00
0654	Port Alberni	34.2403	34.2344	-0.0059	-0.02
0659	Port Elgin	9.8444	7.2184	-2.6260	-26.68
0661	Port Hawkesbury	8.3450	8.1140	-0.2310	-2.77
0666	Port Stanley	9.8795	3.6187	-6.2608	-63.37
0669	Portage la Prairie	24.7291	24.6737	-0.0554	-0.22
0670	Portneuf	11.3558	11.3556	-0.0002	0.00
0672	Powassan	3.1344	3.1335	-0.0009	-0.03
0673	Powell River	29.7964	29.7687	-0.0277	-0.09
0675	Prescott	4.9511	4.9505	-0.0006	-0.01
0679	Prince George	116.1755	116.0619	-0.1136	-0.10
0680	Prince Rupert	44.1392	7.8732	-36.2660	-82.16
0683	Provost	4.9322	4.9321	-0.0001	0.00
0685	Québec	669.3588	669.3316	-0.0272	0.00
0692	Rawdon	27.2068	10.4427	-16.7641	-61.62
0693	Raymond	4.7548	4.7546	-0.0002	0.00
0699	Renfrew	12.9152	12.9148	-0.0004	0.00
0700	Revelstoke	30.7199	18.7501	-11.9698	-38.96
0708	Rimbey	4.2013	4.2011	-0.0002	0.00
0715	Roberval	5.6408	3.7158	-1.9250	-34.13
0716	Roblin	8.6788	3.7928	-4.8860	-56.30
0720	Rocky Mountain House	12.4398	12.4397	-0.0001	0.00
0723	Rogersville	7.2302	7.2301	-0.0001	0.00
0724	Rosetown	10.5890	10.5887	-0.0003	0.00
0728	Rouyn-Noranda	97.8973	45.5313	-52.3660	-53.49
0735	Salisbury	13.6823	13.6819	-0.0004	0.00
0736	Salmon Arm	14.9928	14.9786	-0.0142	-0.09

**Table B.1 2001 Urban areas post-censally updated showing land area modification  
(continued)**

<b>Urban area</b>		<b>Published urban land area in squared kilometres</b>	<b>Modified urban land area in squared kilometres</b>	<b>Difference in squared kilometres (published minus modified)</b>	<b>Percent change (%)</b>
<b>Code</b>	<b>Name</b>				
0739	Sault Ste. Marie	56.1528	55.9965	-0.1563	-0.28
0740	Sayabec	52.3299	3.1674	-49.1625	-93.95
0746	Senneterre	11.3995	11.3992	-0.0003	0.00
0748	Sept-Îles	88.5412	19.6802	-68.8610	-77.77
0750	Shawinigan	178.9696	106.2736	-72.6960	-40.62
0752	Shawville	5.4012	5.4008	-0.0004	-0.01
0755	Shelburne	4.7088	4.7087	-0.0001	0.00
0756	Shellbrook	2.1302	2.1301	-0.0001	0.00
0759	Shilo CFB-BFC	16.2757	1.3171	-14.9586	-91.91
0762	Simcoe	26.1427	26.1423	-0.0004	0.00
0764	Slave Lake	293.7226	14.4333	-279.2893	-95.09
0766	Smiths Falls	9.3404	9.3186	-0.0218	-0.23
0771	Souris	2.8273	2.8267	-0.0006	-0.02
0772	Souris	3.4219	3.4218	-0.0001	0.00
0777	Spirit River	2.8053	2.8052	-0.0001	0.00
0778	Springdale	17.5984	17.5983	-0.0001	0.00
0781	Squamish	32.6069	15.8048	-16.8021	-51.53
0786	St. Anthony	15.2120	5.4179	-9.7941	-64.38
0788	St. Catharines - Niagara	388.7700	382.5660	-6.2040	-1.60
0798	St. Stephen	12.4258	12.4252	-0.0006	0.00
0799	St. Thomas	35.1581	35.1577	-0.0004	0.00
0800	Saint-Agapit	8.5073	1.3691	-7.1382	-83.91
0801	Saint-Alexis-des-Monts	6.1238	6.1224	-0.0014	-0.02
0802	Saint-Ambroise	6.6261	6.6260	-0.0001	0.00
0807	Saint-Basile-Sud	7.6778	1.9481	-5.7297	-74.63
0811	Saint-Césaire	4.3392	3.6439	-0.6953	-16.02
0816	Saint-Damien-de-Buckland	34.8995	3.0397	-31.8598	-91.29
0819	Saint-Donat-de-Montcalm	6.8998	3.6643	-3.2355	-46.89
0822	Saint-Fabien	1.6006	1.5976	-0.0030	-0.19
0823	Saint-Félicien	14.4922	11.2543	-3.2379	-22.34
0824	Saint-Félix-de-Valois	21.4434	3.8238	-17.6196	-82.17
0828	Saint-Georges	25.3808	25.3525	-0.0283	-0.11
0830	Saint-Germain-de-Grantham	2.5965	2.5963	-0.0002	-0.01
0835	Saint-Jacques	36.3656	6.3880	-29.9776	-82.43

**Table B.1 2001 Urban areas post-censally updated showing land area modification  
(continued)**

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<b>Code</b>	<b>Name</b>				
0836	Saint-Jean-sur-Richelieu	86.1144	85.6950	-0.4194	-0.49
0840	Saint-Jean-Port-Joli	4.7812	4.7810	-0.0002	0.00
0841	Métabetchouan	1.7819	1.7817	-0.0002	-0.01
0842	Saint-Jérôme	48.2034	48.1249	-0.0785	-0.16
0844	Saint-Joseph-de-Beauce	4.6123	4.6117	-0.0006	-0.01
0847	Saint-Jovite	9.4860	7.1163	-2.3697	-24.98
0850	Saint-Michel-des-Saints	93.9610	3.7447	-90.2163	-96.01
0852	Saint-Pacôme	8.5967	2.9093	-5.6874	-66.16
0855	Saint-Pie	3.5382	3.1994	-0.3388	-9.58
0857	Saint-Prosper	50.1001	3.2287	-46.8714	-93.56
0859	Saint-Raymond	6.0912	6.0882	-0.0030	-0.05
0861	Saint-Rémi	15.7522	2.7836	-12.9686	-82.33
0863	Saint-Sauveur-des-Monts	5.9739	5.9703	-0.0036	-0.06
0874	Sainte-Adèle	23.9137	11.9094	-12.0043	-50.20
0876	Sainte-Anne-des-Monts	38.5889	12.6604	-25.9285	-67.19
0877	Sainte-Claire	15.4902	2.2798	-13.2104	-85.28
0881	Sainte-Madeleine	5.4361	5.4360	-0.0001	0.00
0882	Sainte-Marie	24.7749	11.2946	-13.4803	-54.41
0887	Steinbach	25.5697	25.5695	-0.0002	0.00
0888	Stephenville	12.4363	12.3920	-0.0443	-0.36
0889	Stephenville Crossing	2.3254	2.3252	-0.0002	-0.01
0890	Stettler	9.5340	9.5181	-0.0159	-0.17
0904	Sudbury	271.0347	271.0343	-0.0004	0.00
0908	Sutton	12.9752	12.9750	-0.0002	0.00
0912	Swift Current	23.9725	23.7216	-0.2509	-1.05
0913	Cape Breton - Sydney	51.4477	51.4473	-0.0004	0.00
0919	Tavistock	2.5930	2.5923	-0.0007	-0.03
0920	Témiscaming	5.4523	1.2970	-4.1553	-76.21
0922	Terrace	610.8580	36.5952	-574.2628	-94.01
0928	Thessalon	4.3750	4.3746	-0.0004	-0.01
0929	Thetford Mines	47.2357	47.2178	-0.0179	-0.04
0930	Thompson	17.1773	17.1772	-0.0001	0.00
0936	Thurso	4.8414	4.8413	-0.0001	0.00

**Table B.1 2001 Urban areas post-censally updated showing land area modification  
(continued)**

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<b>Code</b>	<b>Name</b>				
0939	Tillsonburg	22.3355	22.3352	-0.0003	0.00
0943	Tisdale	4.6207	4.6206	-0.0001	0.00
0945	Tottenham	2.8343	2.8257	-0.0086	-0.30
0948	Trail	35.4026	19.5497	-15.8529	-44.78
0953	Trois-Rivières	177.0109	176.8894	-0.1215	-0.07
0959	Ucluelet	6.5458	6.5456	-0.0002	0.00
0960	Unity	9.7656	9.7653	-0.0003	0.00
0965	Val-d'Or	198.5560	25.4631	-173.0929	-87.18
0970	Valley East	55.8549	55.8548	-0.0001	0.00
0972	Valleyview	4.5736	4.5735	-0.0001	0.00
0973	Vancouver	1,119.9592	1,119.1805	-0.7787	-0.07
0974	Vanderhoof	2.1919	2.1764	-0.0155	-0.71
0991	Virden	8.5655	8.5649	-0.0006	-0.01
0993	Vulcan	6.5819	6.5807	-0.0012	-0.02
0994	Wabana	14.4961	14.4958	-0.0003	0.00
0995	Wadena	2.9064	2.9054	-0.0010	-0.03
0996	Wainwright	8.2378	8.2372	-0.0006	-0.01
0998	Walkerton	8.7416	8.7415	-0.0001	0.00
1003	Waterford	2.9969	2.9968	-0.0001	0.00
1007	Watrous	11.1713	11.1710	-0.0003	0.00
1008	Weedon Centre	5.4620	5.4618	-0.0002	0.00
1011	West Lorne	1.7546	1.7540	-0.0006	-0.03
1017	Wheatley	6.9908	2.5699	-4.4209	-63.24
1020	Whitchurch-Stouffville	13.4937	13.4932	-0.0005	0.00
1021	White Rock	42.2747	42.0082	-0.2665	-0.63
1029	Winchester	2.3490	2.3489	-0.0001	0.00
1030	Windsor	9.6410	9.6407	-0.0003	0.00
1035	Winkler	17.0207	17.0133	-0.0074	-0.04
1037	Wolfville	6.4518	6.4517	-0.0001	0.00
1041	Wyoming	5.0542	5.0541	-0.0001	0.00
1045	Yorkton	24.2516	24.2497	-0.0019	-0.01
1047	One Hundred Mile House	18.8452	2.4119	-16.4333	-87.20
1061	Fermont	470.6681	5.2517	-465.4164	-98.88
1062	Fort Erie	26.5220	26.1890	-0.3330	-1.26
1064	Gaspé	15.3504	6.5602	-8.7902	-57.26
1066	Rivière-au-Renard	76.4887	7.0202	-69.4685	-90.82
1071	Nobleton	16.5110	16.5109	-0.0001	0.00
1072	Port-Alfred-Bagotville	20.3381	12.8178	-7.5203	-36.98

**Table B.1 2001 Urban areas post-censally updated showing land area modification  
(continued)**

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<b>Code</b>	<b>Name</b>				
1075	Beamsville	8.6934	8.6929	-0.0005	-0.01
1080	Musgrave Harbour	15.7880	6.0383	-9.7497	-61.75
1083	Mississauga Beach	4.6648	4.6004	-0.0644	-1.38
1087	Port Hardy	20.0869	6.9305	-13.1564	-65.50
1098	Sooke	9.1806	9.1804	-0.0002	0.00
1099	Timmins	16.7074	16.5706	-0.1368	-0.82
1123	Daveluyville	2.5812	2.5810	-0.0002	-0.01
1127	Les Coteaux	20.2225	19.8211	-0.4014	-1.98
1129	Grand Valley	6.5769	1.3848	-5.1921	-78.94
1132	Creemore	1.8607	1.8604	-0.0003	-0.02
1139	Black Diamond	9.6261	9.6259	-0.0002	0.00
1144	Logan Lake	7.4589	4.8946	-2.5643	-34.38
1147	Colchester	3.5389	3.5346	-0.0043	-0.12
1159	Wellington	16.8751	6.9949	-9.8802	-58.55
1164	Sundre	7.0152	6.5556	-0.4596	-6.55
1170	Dutton	2.0434	2.0428	-0.0006	-0.03
1171	Salmo	2.3775	2.3773	-0.0002	-0.01
1173	Blackfalds	2.5013	2.5011	-0.0002	-0.01
1179	Sainte-Anne-des-Plaines	15.1888	3.4920	-11.6968	-77.01
1184	Sainte-Julienne	22.9285	2.5561	-20.3724	-88.85
1186	Danville	2.2138	2.2137	-0.0001	0.00
1202	Beaumont	10.5031	10.5029	-0.0002	0.00
1205	Brownsburg	8.3320	8.3308	-0.0012	-0.01
1207	Rodney	2.1325	2.1302	-0.0023	-0.11
1209	Rockwood	2.8158	2.7928	-0.0230	-0.82
1214	Bon Accord	2.1072	2.1071	-0.0001	0.00
1221	Houston	13.6863	4.3639	-9.3224	-68.11
1222	Dallas	6.6571	6.6569	-0.0002	0.00
1225	Lac du Bonnet	2.2478	2.2477	-0.0001	0.00
1231	Macklin	29.4945	2.8494	-26.6451	-90.34
1238	Le Bic	3.8853	3.8839	-0.0014	-0.04
1241	Hastings	3.2631	3.2602	-0.0029	-0.09
1242	Sexsmith	5.7868	3.4250	-2.3618	-40.81
1243	Hensall	1.8985	1.8984	-0.0001	-0.01
1245	St. Jacobs	2.5099	2.5098	-0.0001	0.00
1249	Coalhurst	1.6398	1.6397	-0.0001	-0.01
1257	Rossland	8.4304	8.4303	-0.0001	0.00
1267	Lake Echo	8.8689	8.8331	-0.0358	-0.40
1270	Saint-Canut	2.2121	2.2119	-0.0002	-0.01

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<b>Code</b>	<b>Name</b>				
1275	Attawapiskat 91A	2.0242	1.1891	-0.8351	-41.26
1277	Saint-Alexandre	7.1992	2.0361	-5.1631	-71.72
1284	Hauterive	15.7145	8.4223	-7.2922	-46.40
1287	Kingsey Falls	3.5737	3.5735	-0.0002	-0.01
1288	Sainte-Anne-de-Madawaska	9.2073	9.2069	-0.0004	0.00
1291	Smoky Lake	4.1966	4.1965	-0.0001	0.00
1292	L'Ascension-de-Notre-Seigneur	96.3432	2.3350	-94.0082	-97.58
1298	Teeswater	1.9803	1.9791	-0.0012	-0.06
1299	Wellesley	5.9508	2.6599	-3.2909	-55.30
1300	Sechelt	17.6419	17.6414	-0.0005	0.00
1301	Mildmay	1.7894	1.7891	-0.0003	-0.02
1303	Killam	4.5346	4.5345	-0.0001	0.00
1304	Lantz	2.9042	2.9040	-0.0002	-0.01
1305	Wikwemikong	4.3782	4.3780	-0.0002	0.00
1306	Russell	14.1257	3.1051	-11.0206	-78.02
1308	Millbrook	2.4313	2.4309	-0.0004	-0.02
1309	Whistler	144.9046	15.9055	-128.9991	-89.02
1311	Athabasca	16.9755	16.9754	-0.0001	0.00
1316	Hillsburgh	2.9050	2.9048	-0.0002	-0.01
1318	Filion	1.3540	0.5442	-0.8098	-59.81
1319	Caledon	6.6205	2.8504	-3.7701	-56.95
1321	Constance Bay	5.5419	5.5418	-0.0001	0.00
1328	White City	2.3956	2.3634	-0.0322	-1.34
1329	Balgonie	3.1508	3.1507	-0.0001	0.00
1333	Roxton Pond	2.7514	2.7512	-0.0002	-0.01
1337	Carleton	0.6105	0.6103	-0.0002	-0.03
1338	Betsiamites	0.6678	0.6677	-0.0001	-0.01
1343	Hayes Subdivision	1.0499	1.0498	-0.0001	-0.01
1344	Enfield	4.4294	4.4293	-0.0001	0.00
1353	Brookside	2.0446	2.0432	-0.0014	-0.07
1354	Hammonds Plains Road	2.0207	2.0181	-0.0026	-0.13
1358	Saint Grégoire	0.5245	0.5240	-0.0005	-0.10
1361	Les Cèdres	0.6677	0.6676	-0.0001	-0.01
1363	Saint-Augustin	1.5586	1.5545	-0.0041	-0.26
1365	Springfield	1.3851	1.3850	-0.0001	-0.01

## Appendix C Changes to urban areas for the 2006 Census

Table C.1 New urban areas, 2006

Urban area unique identification code	Urban area name	Census metropolitan area / census agglomeration in which urban area is located (if applicable)	Comment
10 0300	Fortune		Reinstated for 2006
24 0878	Sainte-Croix		Reinstated for 2006
24 1177	Châteauguay	Montréal	Reinstated for 2006
24 1386	Waskaganish		
35 1084	Dowling	Greater Sudbury / Grand Sudbury	Reinstated for 2006
35 1370	Ballantrae	Toronto	
35 1371	Virgil	St. Catharines - Niagara	
35 1372	Komoka	London	
35 1389	Red Lake		
35 1390	Moosonee		
35 1391	Fort Albany (Part) 67		
46 1373	Lorette	Winnipeg	
47 1374	Regina Beach	Regina	
47 1379	Stanley 157		
48 1387	Bowden		
59 1375	Crofton	Duncan	
59 1376	Roberts Creek		
59 1377	Harrison Hot Springs		
59 1378	Mill Bay		
62 1392	Cambridge Bay		
62 1393	Arviat		

**Table C.2 Retired urban areas, 2006**

<b>Urban area unique identification code</b>	<b>Urban area name</b>
10 0148	Trinity Bay North
10 0357	Hare Bay
10 0457	LaScie
12 0484	Louisbourg
12 1054	Western Shore - Gold River
12 1355	Waverley
13 0566	Nackawic
24 0440	Lac-au-Saumon
24 0560	Murdochville
24 0845	Saint-Joseph-de-la-Rivière-Bleue
24 1073	Bagotville CFB-BFC
24 1226	Albanel
35 0378	Hornepayne
35 1208	Bourget
35 1273	Moose Factory
46 0769	Snow Lake
46 1134	Deloraine
46 1136	Ste. Rose du Lac
46 1289	Leaf Rapids
46 1364	Ile des Chênes
47 0216	Davidson
47 0271	Eston
47 0340	Grenfell
47 0344	Gull Lake
47 0404	Kelvington
47 0409	Kerrobert
47 1152	Carrot River
47 1189	Kipling
47 1345	Caronport
48 1142	Falher
48 1348	Lake Louise

**Table C.3 Merged urban areas, 2006**

<b>Urban area unique identification code</b>	<b>Urban area name</b>	<b>Merged with...</b>
10 1055	Conception Bay South	10 0792 (St. John's)
10 1101	Torbay	10 0792 (St. John's)
13 0637	Petit Rocher	13 0045 (Bathurst)
24 0981	Verchères	24 0547 (Montréal)
35 1180	Kars	35 0616 (Ottawa - Gatineau)
35 1256	Brooklin	35 0614 (Oshawa)
59 1074	Fort Langley	59 1253 (Walnut Grove)
59 1366	Peachland	59 0403 (Kelowna)

**Table C.4 Urban area name changes, 2001 - 2006**

<b>Urban area unique identification code</b>	<b>2001 urban area name</b>	<b>2006 urban area name</b>
13 0331	Disraëli	Disraeli
24 0230	Fort MacLeod	Fort Macleod
24 0616	Wood Buffalo	Fort McMurray
24 1334	Grand Falls (Grand-Sault)	Grand Falls / Grand-Sault
35 0616	Ottawa - Hull	Ottawa - Gatineau
35 1020	Whitchurch-Stouffville	Stouffville
46 1365	Sainte-Sophie	Lac-Alouette
48 0291	Cowichan Valley	Shawnigan
48 0292	Springfield	Oakbank
48 1367	Rocky View	Langdon

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